

Appln. No. 10/705,275  
Amendment dated September 26, 2005  
Reply to Office Action of May 24, 2005

REMARKS

Reconsideration of the present application, as amended, is respectfully requested.

The May 24, 2005 Office Action and the Examiner's comments have been carefully considered. In response, claims are amended and remarks are set forth below in a sincere effort to place the present application in form for allowance. The amendments are supported by the application as originally filed. Therefore, no new matter is added.

FORM PTO-892

The Examiner is respectfully reminded of the fact that USP 6,038,088 (Ikegame) cited by the Examiner in the last Office Action was not listed on the Form PTO-892 attached to the May 24, 2005 Office Action. During a telephone conference with the Examiner on May 27, 2005, the Examiner acknowledged the error and informed Applicants' attorneys that he will list the Ikegame reference on a Form PTO-892 attached to the next Patent Office communication. The Examiner is respectfully requested to provide a Form PTO-892 listing the Ikegame reference.

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ELECTION/RESTRICTIONS

The Examiner's indication that claims 13-20 are withdrawn from further consideration as being drawn to non-elected subject matter is acknowledged.

CLAIM OBJECTIONS

In the Office Action, claims 1-12 are objected to because of certain informalities. In response, claims 1, 3, 5, 7-10 and 12 are amended in a sincere effort to overcome the claim objections. In view of the amendment of the aforementioned claims, reconsideration and withdrawal of the objection to claims 1-12 are respectfully requested.

PRIOR ART REJECTIONS

In the Office Action, claims 1-5, 7, 8 and 11 are rejected under 35 USC 102(b) as being anticipated by USP 4,123,146 (Dragt). Claims 1-6 and 8 are rejected under 35 USC 102(b) as being anticipated by USP 5,280,377 (Chandler et al.). Claim 6 is rejected under 35 USC 103 as being unpatentable over Dragt in view of Chandler et al. Claims 9, 10 and 12 are rejected under 35 USC 103 as being unpatentable over Dragt in view of USP 6,038,088 (Ikegame). Claim 7 is rejected under 35 USC 103 as

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being unpatentable over Chandler et al. Claims 9-12 are rejected under 35 USC 103 as being unpatentable over Chandler et al. in view of Ikegame.

The present claimed invention as defined by amended claim 1 is directed to an optical deflection device including an optical deflection element having a prescribed deflecting plane of deflecting a direction of light, a drive portion for driving the optical deflection element rotatably about two axes, a fixing portion for supporting and fixing the optical deflection element, a moveable portion including the optical deflection element, a support member for supporting the fixing portion and being connected to the fixing portion, and a damping member installed between the moveable portion and fixing portion and being different from the support member.

In rejecting claim 1 the Examiner is of the opinion that either Dragt or Chandler et al. anticipate claim 1.

The present claimed invention is patentable over Dragt.

The present claimed invention is directed to an optical deflection device and recites a drive portion for driving the optical deflection element rotatably about two axes. In Dragt, in order to incline the light in two directions, two galvanometer mirrors are combined. However, as a result, the entire device

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becomes larger, and the precision of the reflected light decreases. On the other hand, in the present claimed invention, light can be inclined in two directions by only one galvanometer mirror, so that the entire device is small, and the precision of the reflected light increases. In addition, the present claimed invention includes a support member. As a result, the support of the movable portion becomes more sure. For example, in embodiment 1, four springs 112 are arranged so that rigidity in the horizontal direction to the reflection surface of the mirror is greatly improved as compared to only the damping member 133, so that unnecessary movement of the mirror can be prevented.

The present claimed invention as defined by amended claim 1 is also patentable over Chandler et al.

In the Office Action the Examiner recites a driving portion (64, 78) in the deflection device of Chandler et al., but numeral 78 of Chandler et al. is a magnet insert. The magnet inserts (78) are coupled to the springs 70. The magnet inserts (78) are a fixing member arranged in a V shaped space of the spring 70, and thus it is not described that reference numeral 78 is the driving member that inclines and drives the movable portion. Chandler et al. recite that driving magnet 62 is a driving member. It appears that there may be a misunderstanding by the

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Examiner between the driving magnet 62 and the magnet inserts 78. The Examiner recognizes "a damping member (70) having a cylindrical shape," but Fig. 6 of Chandler et al. shows "first and second essentially identical springs 70" and thus it is not a cylindrical damping member, but a metallic spring. (See Chandler et al. at column 11, line 47 to column 12, line 24).

The spring 70 is formed by molding a thin stainless foil (0.0015 inches in thickness) in a shape, thereby obtaining the shape of Fig. 6. The cylindrical part shown in Fig. 6 of Chandler et al. is tubular, and the center thereof is a space. Moreover, it is not a damping member but stainless steel free from a damping operation. A part corresponding to the damping member recited in claim 1 of the present application is not disclosed, taught or suggested in Chandler et al. Therefore, Chandler et al. cannot effectively suppress the oscillation generated in the spring 70, and thus accurate driving control becomes difficult, and desired properties cannot be obtained.

In contrast, the present claimed invention has a damping member, so that oscillation can be effectively suppressed, accurate driving control becomes possible, and excellent properties are obtained.

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Claim 1 is patentable over Dragt and Chandler et al.

because the references do not disclose, teach or suggest an optical deflection device comprising:

an optical deflection element having a prescribed deflecting plane of deflecting a direction of light,

a drive portion for driving the optical deflection element rotatably about two axes,

a fixing portion for supporting and fixing the optical deflection element,

a movable portion including the optical deflection element,

a support member for supporting the fixing portion and being connected to the fixing portion, and/or

a damping member installed between the movable portion and the fixing portion, and being different from the support member. (See claim 1, lines 3-15).

Claims 2-12 are either directly or indirectly dependent on claim 1 and are patentable over the cited references in view of their dependence on claim 1 and because the references do not disclose, teach or suggest each of the limitations set forth in claim 1.

In view of the foregoing, claims 1-12 are in form for immediate allowance, which action is earnestly solicited.

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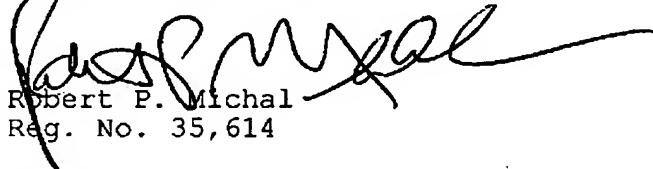
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If the Examiner disagrees with any of the foregoing, the Examiner is respectfully requested to point out where there is support for a contrary view.

Entry of this Amendment, allowance of the claims, and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



Robert P. Michal  
Reg. No. 35,614

Frishauf, Holtz, Goodman & Chick, P.C.  
220 Fifth Avenue - 25th Floor  
New York, New York 10017-2032  
Tel. (212) 319-4900  
Fax (212) 319-5101  
RPM:ms

Encl.: Petition for Extension of Time